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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,953

12/08/2003

Koji Kitani

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EXAMINER

TALBOT, BRIAN K

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

07/02/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/728,953	Applicant(s) KITANI, KOJI	
	Examiner Brian K. Talbot	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 3/13/08 has been considered and entered. Claims 1-5 remain in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted state of the art (specification, [0002]-[0011]) in combination with Huggins (6,153,268) or JP 49-022119 further in combination with Mori (4,500,397).

Applicant's admitted state of the art (specification, [0002]-[0011]) teaches forming a piezoelectric film by gas deposition techniques comprising ejecting ultra-fine particles having a perovskite structure on a substrate and polarizing the layer to form the piezoelectric film. The electric field applied in the polarizing step has an intensity of from 1-5 kV/mm. The substrate can be metal or resin.

Applicant's admitted state of the art (specification, [0002]-[0011]) fails to teach applying the electric field to the ultra-fine particles while traveling toward the substrate as opposed to on the substrate.

Huggins (6,153,268) teaches a method of producing oriented piezoelectric films. This is done by bombarding a target comprising a piezoelectric material, dislodging the particles, ionizing the particles, and electrostatically attracting the dislodged particles to the substrate (abstract and Fig. 2). Huggins (6,153,268) teaches ionizing the particles by establishing an electric field within the chamber (22) with a coil (36) placed around the chamber (22) (col. 3, lines 20-50). Huggins (6,153,268) teaches dislodging ionized particles and ionizing them in a RF field and depositing on the substrate to form a highly oriented piezoelectric layer (col. 4, lines 6-19).

JP 49-022119 teaches piezoelectric thin films produced by spraying the piezoelectric particles and subjecting them to an electric field to control the polar axes for producing a piezoelectric film (abstract and Figs. 1-3).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Applicant's admitted state of the art (specification, [0002]-[0011]) by incorporating an electric field as evidenced by Huggins (6,153,268) or JP 49-022119 to produce the oriented piezoelectric films without the need for a subsequent polarizing step.

Applicant's admitted state of the art (specification, [0002]-[0011]) in combination with Huggins (6,153,268) or JP 49-022119 fail to specifically teach orienting the particles with dipoles oriented in direction of electric field.

Mori (4,500,397) teaches a method for the preparation of pyroelectric material. As depicted in Fig. 8, the pyroelectric material can be applied by spraying from a nozzle (47) onto a substrate whereby the particles are subjected to an electric field and oriented and polarized (col. 7, line 60 – col. 9, line 11).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Applicant's admitted state of the art (specification, [0002]-[0011]) in combination with Huggins (6,153,268) or JP 49-022119 to sufficiently polarize/orient the particles as evidenced by Mori (4,500,397) with the expectation of achieving similar success, i.e. a polarized piezoelectric film.

Response to Amendment

4. Applicant's arguments filed 3/13/08 have been fully considered but they are not persuasive.

Applicant argued that the secondary references fail to teach orientating or polarizing the particles.

Mori (4,500,397) teaches this as detailed above.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian K Talbot/
Primary Examiner, Art Unit 1792

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